

Overview



SIRIUS 3TK282. safety relay

**Safety relays with relay enabling circuits –
Safety with floating contacts**

SIRIUS safety relays with relay enabling circuits are not only extremely space-saving thanks to their compact design, they also offer extra safety with positively driven NO and feedback contacts in pairs. If one of the contact welds, the other assumes the disconnection of the circuit. A positively driven feedback contact (NC) then performs the fault detection of the faulty NO contact.

3SK121. expansion units are available to increase the number of enabling circuits, [see page 13/130](#).

3TK2826 safety relays

The 3TK2826 is a parameterizable safety relay. It is used as an evaluation unit for typical safety chains (identify, evaluate, realize). A number of functions can be set using the DIP switches on the front. The 3TK2826 is therefore universally applicable.

Safety sensors (e.g. an EMERGENCY-STOP device) are connected at the input side while contactors or valves for disconnecting the "hazardous function" are connected at the output side.

The 3TK2826 performs the monitoring of the sensor and actuator functions as well as the safe disconnection of the outputs (enabling circuits).

3TK2826 with DIP switch:

DIP switch No.	ON	OFF	Schematic
1	Switching mat operation	Without crossover monitoring	
2	NC/NC evaluation	NC/NO evaluation	
3	1 x 2-channel	2 x 1-channel	
4	Debounce time for sensor inputs ≈ 10 ms	Debounce time for sensor inputs ≈ 50 ms	
5	Sensor input Monitored start	Sensor input Autostart	
6	Cascading input Monitored start	Cascading input Autostart	
7	Without start test	With start test	
8	Without automatic start after mains failure	Automatic start after mains failure (not permitted in connection with a start test)	

Benefits

- Compact design
- Floating safe outputs
- Can be used up to an ambient temperature of max. 70 °C
- Connection for all common sensor types
- Many functions available in just one device
- Status displays
- Extended diagnostic capabilities
- Approvals (EN ISO 13849-1, IEC 61508, UL/CSA)
- Reporting of trip faults in the actuator circuit
- Floating outputs
- Wide-range device
- Sensor condition saved in the event of voltage failure

Technical specifications

Type	Basic units			
	3TK2826			
	24 V DC	Wide voltage range	24 V DC t_v	Wide voltage range t_v
Sensors				
• Inputs	1	1	1	1
• Electronic	✓	--	✓	--
• With contacts	✓	✓	✓	✓
• Magnetically operated switch (Reed contacts)	✓	✓	✓	✓
Safety mats	✓	✓	✓	✓
Start				
• Auto	✓	✓	✓	✓
• Monitored	✓	✓	✓	✓
Cascading input				
24 V DC	✓	✓	✓	✓
Key-operated switch	--	--	--	--
Enabling circuit, floating				
• Stop category 0	4 NO	4 NO	2 NO	2 NO
• Stop category 1	--	--	2 NO	2 NO
Enabling circuit, electronic				
• Stop category 0	--	--	--	--
• Stop category 1	--	--	--	--
Signaling outputs				
• Floating	1 NC	1 NO + 1 NC	2 NC	1 NO + 2 NC
• Electronic	2	--	2	--
Standards	IEC 60204-1, EN ISO 12100, EN ISO 13849-1, IEC 61508	IEC 60204-1, EN ISO 12100, EN ISO 13849-1, IEC 61508	IEC 60204-1, EN ISO 12100, EN ISO 13849-1, IEC 61508	IEC 60204-1, EN ISO 12100, EN ISO 13849-1, IEC 61508
Test certificates	TÜV, UL, CSA	TÜV, UL, CSA	TÜV, UL, CSA	TÜV, UL, CSA
SIL level max. according to IEC 61508	3	3	3	3
Performance level PL according to ISO 13849-1	e	e	e	e
Probability of a dangerous failure per hour (PFH_d)	7.8×10^{-9} 1/h	7.8×10^{-9} 1/h	7.8×10^{-9} 1/h	7.8×10^{-9} 1/h
Rated control supply voltage				
• 24 V DC	✓	--	✓	--
• 24 ... 240 V AC/DC	--	✓	--	✓

✓ Available

-- Not available

SIRIUS 3TK28

With relay enabling circuits

Selection and ordering data

PU (UNIT, SET, M) = 1
 PS* = 1 unit
 PG = 41L



3TK2826-1BB40



3TK2826-2BB40

Rated control supply voltage U_s	Start	OFF-delay t_v	DT	Screw terminals		DT	Spring-type terminals	
V		s		Article No.	Price per PU		Article No.	Price per PU

Basic units

With floating enabling circuits

3TK2826

• 24 DC	Auto/monitored	--	A	3TK2826-1BB40	A	3TK2826-2BB40
• 24 ... 240 AC/DC	Auto/monitored	--	A	3TK2826-1CW30	C	3TK2826-2CW30

With time-delayed enabling circuits

3TK2826 t_v

• 24 DC	Auto/monitored	0.05 ... 3	C	3TK2826-1BB41	C	3TK2826-2BB41
• 24 ... 240 AC/DC	Auto/monitored	0.05 ... 3	C	3TK2826-1CW31	C	3TK2826-2CW31
• 24 DC	Auto/monitored	0.5 ... 30	A	3TK2826-1BB42	C	3TK2826-2BB42
• 24 ... 240 AC/DC	Auto/monitored	0.5 ... 30	C	3TK2826-1CW32	C	3TK2826-2CW32
• 24 DC	Auto/monitored	5 ... 300	C	3TK2826-1BB44	C	3TK2826-2BB44
• 24 ... 240 AC/DC	Auto/monitored	5 ... 300	C	3TK2826-1CW34	C	3TK2826-2CW34